

PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Improvements in and relating to Containers formed of Plastics Material

I, KATHLEEN HENFREY, of 100 Landor Road, Whitash, Warwickshire, a British Subject, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:

The present invention relates to containers formed of plastics material and more particularly to containers, such as bags fabricated from flexible tubular or sheet material.

The object of the present invention is to provide a container formed of plastics material incorporating a closure member which provides a method of gaining entry into the container for the purpose of examining, testing extracting or adding to its contents.

As is well known, flexible thermo plastic sheets can be welded along their edges and filled to form a satchet type container. Such containers do not have any means by which entry can be made into the container for the purpose of using the contents. It is usual for such a satchet to be cut with scissors so that all the contents are completely exposed, and in general, have to be used immediately.

Alternatively, thermo plastic sheets can be welded together along their edges to provide a container having an aperture formed in one corner thereof which has a filling and pouring spout and closure member attached thereto. Such constructions, which are used extensively for packaging purposes, have not proved to be entirely satisfactory with respect to the manner in which the spout is attached to the container as the weakest portion is the area at the juncture of the base of the spout with the material surrounding the aperture in the bag due to pinholing often occurring

in the material as a result of welding this difficult profile. Furthermore, it is impossible to weld together a flexible sheet of plastics material and a rigid filling or pouring spout closure member as, obviously, to achieve satisfactory welding, the melt temperature of the materials used must be closely related.

Thus, it will be apparent that a container made from low density polythene could not be fabricated to carry a pouring spout or discharge member fabricated from a material such as Nylon due to the fact that the materials would be totally incompatible with known welding techniques. Many satchet type packs, in order to provide adequate protection for the contents, comprise several materials laminated together and it is extremely difficult to provide pouring spouts and reclosure techniques for such containers.

A further object of the present invention is to provide a container formed of plastics material which overcomes the disadvantages referred to above and also materially reduces the cost thereof in comparison with the prior constructions having spout members discussed above.

The present invention consists in a container in combination with a hollow probe or hollow connector member, the container being formed of plastics sheet material and having an apertured adapter attached to an interior surface of the container wall so as to be positioned wholly within the container, the arrangement being such that when it is desired to gain access to the interior of the container, the hollow probe or hollow connector member is forced into the aperture in the adapter through the plastics sheet material.

In the accompanying drawings:—

Figure 1 is a perspective view of a

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container, having an apertured boss in combination with a hollow probe or connector according to the present invention.

Figure 2 is a cross-section through the apertured boss shown in Figure 1.

Figure 3 is a cross-section through the probe or connector shown in Figure 1.

Figures 4 and 5 are perspective views of hollow probe connectors which may be used in place of the construction shown in Figure 2.

Figures 6 to 8 are perspective views of alternative constructions of apertured boss.

Figure 9 is a cross-section through a container showing the apertured boss in combination with a plug member.

In carrying the invention into effect according to one convenient mode, by way of example as shown in Figure 1, a container 10 is formed from a tubular film of thermo plastic resinous material, such as polythene, which provides a front and a rear wall 11 and 12 respectively. One end 13 of the tube is closed as by heat welding and an apertured adapter or boss 14 formed from similar plastics material, is attached to the front wall 11 interiorly of the bag or container 10.

As will be seen more clearly from Fig. 2, the adapter 14 comprises a cupped shape member 15 having an axially positioned aperture 16 in its base 17 which is surrounded by a circular wall or sheath 18, the purpose of which will be described hereinafter.

The base 17 has a plurality of concentrically arranged sealing rings 19 which simplify the heat welding of the base to a wall of the container. Thus, when the adapter is so attached, only a film of the resinous material used in fabricating the container 10 covers the aperture 16. In use, assuming the container 10 has been filled with a liquid and its other end 20 sealed, when it is desired to gain entry into the container a connector or probe 21 is forced through the film of resinous material covering the aperture 16 so that the probe 21 is in communication with the interior of the container 10.

The cup shaped member 15 is of the same length, or of greater length, than the entering end 22 of the probe 21 which it is designed to receive so as to avoid the probe 22 penetrating the opposite wall 12 of the container 10.

The end 22 of the probe 21 is tapered to effect easy penetration of the aperture 16 and is dimensioned and profiled to ensure a liquid-tight seal with the circular wall or sheath 18 of the member 15 as entry and communication with the interior of the container 10 is being effected.

The entering end is provided with a groove 23 which, when the probe is inserted

fully into the adapter 14, is engaged by the material surrounding the aperture 16 and so locks the probe and adapter together.

The probe 21 is essentially a hollow tube made from any convenient material and has a circular flange 24 which facilitates the forcing of the end 22 through the wall of the container. The other end 25 of the probe 21 preferably has a flexible plastics tube 26 mounted thereon, although alternative constructions now to be described may be used if desired.

As shown in Fig. 4, the end 25 can be provided with a screw thread 26a to receive either a screw closure 27 or any other screw type fitting, whilst the entering end 22 is provided with splines 28 instead of the groove 23 shown in the previous constructions. It will be appreciated that when the probe 21 is inserted into the adapter 14, the splines 28 are gripped by the material surrounding the aperture 16 which prevents turning movement of the probe when the cap 27 is tightened. Alternatively, as shown in Fig. 5, the end 25 can be fitted with a tap or valve arrangement for the purpose of controlling the flow into or out of the container 10.

In further alternative constructions, the adaptor 14 may be rectangular in shape, as shown in Fig. 6, with a wall 30 to prevent the probe 21 penetrating the opposite wall of the container 10. Alternatively, it may be of triangular or circular configuration as shown in Figs. 7 and 8, respectively. Thus, the adapter 14 can be of a size and configuration which is dependent on the end purpose of the container.

In a further construction, as shown in Fig. 9, in addition to the adapter 14 described above, a cup-shaped plug member 31 is attached to the wall 12 of the container 10 opposite to the adaptor 14 and in alignment therewith. The base 32 of the plug member is heat-sealed to the opposite wall of the bag so that, if only a predetermined quantity of the liquid is required, after entering the probe 21 into the adapter 14 and removing the liquid required, the container can be resealed by forcing the wall 33 of the plug member 31 between the walls 15 and 18 of the adapter so that it closes the end of the latter.

Although the above description has only referred to a single film of polyethylene it will be appreciated that film such as polypropylene or polyvinylchloride may be used. Alternatively, composite sheets or laminates of these materials may be used either with each other or with other materials.

A container as described above can be stored in a flat condition and, if required, several adapters can be embodied within a single container to allow entry into the container at different times, either to add

or extract material as required.

WHAT I CLAIM IS:—

1. A container in combination with a hollow probe or hollow connector member, the container being formed of plastics sheet material and having an apertured adapter attached to an interior surface of the container wall so as to be positioned wholly within the container, the arrangement being such that when it is desired to gain access to the interior of the container, the hollow probe or hollow connector member is forced into the aperture in the adapter through the plastics sheet material.
2. A container as claimed in claim 1, wherein a circular wall or sheath surrounds said aperture to form a liquid-tight seal with the probe when it enters said aperture.
3. A container as claimed in claim 2, wherein the adapter is a cup-shaped member having the aperture positioned axially in the base thereof and its wall surrounding and concentrically arranged with respect to said circular sheath.
4. A container as claimed in claim 3, wherein a plug member is attached to the wall of the container opposite to the adapter and in alignment therewith, to effect, if required, resealing of the container after the probe has been entered into the adapter.
5. A container as claimed in claim 4, wherein said plug member is cup-shaped and resealing is effected by forcing the circular wall thereof between the circular wall and sheath of the adapter to effect closure of the latter.
6. A container as claimed in claim 1 or 2, wherein said adapter is of rectangular

configuration.

7. A container as claimed in claim 1 or 2, wherein said adapter is of triangular configuration.

8. A container as claimed in claim 1 or 2, wherein said adapter is of circular configuration.

9. A container as claimed in any of the preceding claims, wherein the probe is provided with a flange and the entering end thereof is tapered to assist penetration into the aperture in the adapter.

10. A container as claimed in claim 9, wherein the entering end of the probe is provided with a groove which, when the probe is inserted fully into the aperture, is engaged by the material surrounding the aperture to lock the probe and adapter together.

11. A container as claimed in claim 9 or 10, wherein the other end of the probe has a flexible plastics tube mounted thereon.

12. A container as claimed in claim 9 or 10, wherein the other end of the probe has a tap or valve arrangement associated therewith.

13. A container as claimed in claim 9, wherein the other end of the probe has a screw-thread adapted to receive a screw-closure member, the entering end of said probe having splines which, when the probe is inserted into the adapter, are gripped by the material surrounding the aperture which prevents turning movement of the probe when the closure member is tightened.

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